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ABSTRACT

The individually prescribed instruction (IPI) system in use at Draper Correctional Center was studied. The IPI system for basic education involves five operations: (1) establishing the learning objectives--basic literacy, educational skills prerequisite for occupational training, preparation for the GED high school equivalency examination, etc., (2) Diagnosing the learner's relevant entry skills, (3) Prescribing the modules of material in the sequence necessary to attain the objective or to remedy the learning deficiency, (4) Managing the contingencies of reinforcement, and (5) Evaluating learner's progress. To complement the IPI system, a system of managing the contingencies of reinforcement was necessary in order to maintain consistent learning performance. The study was designed in three phases. Phase I was a three-week baseline period during which quantity and quality baseline measures of academic "productivity" were established. During Phase II, the contingencies of reinforcement were managed by the experimenter. The third phase was a two-week self-management phase during which each subject was allowed to specify the amount of work he would do each day. Evaluation of the effectiveness of contingency management techniques in the Manpower Development and Training Program will be part of an intensive, long-term follow-up study. (CK)

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CONTINGENCY MANAGEMENT IN A CORRECTIONAL INSTITUTION[1]

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The use of positive reinforcement for prisoners is a new concept in most correctional institutions, where a long tradition of punishment and negative reinforcement is built into rules and regulations and into the daily interactions of correctional staff with their wards. The prison administration, particularly the custodial officers, tend to view the treatment-oriented staff with hostility and suspicion. The treatment staff often "reward" inmates indiscriminately, using frequent positive social reinforcers without regard to scheduling or to contingencies of reinforcement. Custodial officers frequently view the treatment staff as a group bent on undermining the discipline and control of the inmate population. The inmates view the treatment staff as tools, as people to be manipulated in order to gain privileges or as people to be manipulated to get their help in resisting the prison administration. The prison administration is probably justified in its reaction when they observe that the treatment staff seem reluctant to require constructive contingencies for the special privileges and other reinforcers given to the inmates.

While the situation described above is generally representative of prisons, the situation has been quite different at the Draper Correctional Center. For the past eight years, the Draper project has operated experimental educational programs which require the inmate learner to perform and to achieve specific goals in order to earn his privileges. The arrangement pleases all concerned--the inmates, the administration, and the rehabilitation staff.

What is emerging at Draper is not just a program using contingency management techniques, but rather an integrated system which affords a fruitful context in which to employ contingency management techniques and an environment in which the effectiveness of these techniques can be measured. Operating within the structure of the nation's only Experimental Manpower Laboratory for Corrections (EMLC), the Rehabilitation Research

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Foundation (RRF) is setting up an "Ecological Unit" as a separate unit within the Draper Correctional Center. The Ecological Unit will permit almost total control of the inmates' environment. In support of a Manpower Development and Training Program, the RRF will conduct basic education and academic courses, capitalizing on techniques developed in earlier experimental projects at Draper. Two important precursors of the Ecological Unit experiment are (1) the Draper project's eight years of experience in developing and using programmed instruction (PI) and (2) its experiments with contingency management techniques.

Experience with PI

Early efforts at Draper created a "self-instructional school" in which programmed materials made up nearly 95 percent of the curriculum. The reinforcers used to maintain learning behavior were largely social-staff approval, "inspirational" talks, visitors from the "free world," and student success. Experience with the successful programmed materials soon showed that two things were necessary for consistent and efficient effect: (1) better scheduling of stimulus materials (i.e., the programmed learning) and (2) a more sophisticated system for scheduling the contingencies of reinforcements. The response to the first of these needs was the creation of a system of "individually prescribed instruction"(IPI). The IPI system has been refined for basic education, and some of its procedures are also being applied to occupational training and social skill development.

The IPI system for basic education involves five operations:

(1) Establishing the learning objectives–basic literacy, educational skills prerequisite for occupational training, preparation for the GED high school equivalency examination, etc.

(2) Diagnosing the learner's relevant entry skills

(3) Prescribing the modules of material in the sequence necessary to attain the objective or to remedy the learning deficiency

(4) Managing the contingencies of reinforcement

(5) Evaluating learner's progress

One important contribution of the IPI system is that it largely eliminates "over prescribing." Frequently, a diagnostic test indicates that the learner needs help only for some–not all–of the many classes of deficiencies treated by such a program as, say, *English 2600*. The IPI system automatically prescribes only those frames or parts of a program that treat a class of deficiencies indicated by a specific missed item on the diagnostic test. The IPI system is so designed that a learning manager, by simply following its

step-by-step instructions, can accurately diagnose learning deficiencies and precisely prescribe for them even if he is not familiar with either the programmed materials or the diagnostic test itself.

Contingency Management Study

To complement the IPI system, a system of managing the contingencies of reinforcement was necessary in order to maintain consistent learning performance. Contingency management techniques had been used informally in various individual courses and experiments for some time, but the first systematic study of them at Draper was that of Clements and McKee (1968). PI's intrinsic reinforcers (e.g., being right over 90 percent of the time) are not sufficient to elicit sustained efficient learning behavior in the offender group. In the attempt to identify available reinforcers, Homme and his associates (Homme *et al.*, 1963; Homme & Tosti, 1965; Homme, 1966) have been drawn largely from the findings of Premack (1963, 1965) in pursuing the notions of reinforcing response, reinforcing event, and high and low probability behaviors. From these backgrounds and the informal experience at Draper, it was felt that certain elements were necessary in this contingency management study: the reinforcing events (RE) menu and the use of performance contracts.

An RE menu had been devised in one attempt to ensure proper contingency management (Addison & Homme, 1966). Few or no experimental data were available on the frequent use of performance contracts (of sorts) by educators, but the use of contracts in behavior modification settings had been reported (Sulzer, 1962; Dinoff, 1966). One further consideration came from the implication of the Premack principle that nature does not care who arranges contingencies (Homme, 1966). If the subject could be taught to manage certain specified units of his own behavior, the experimenter's task would be simplified. Moreover, the success of behavior modification techniques must be measured by the degree of transfer to self-management situations.

As a result of the foregoing considerations, the study was designed in three phases. Subjects were 16 inmate volunteers with an age range from 17 to 35 and a range of academic achievement level from .7 to 11.2 grades. The environment for the study included a learning area and an RE area in separate rooms. Phase I was a three-week baseline period during which quantity and quality baseline measures of academic "productivity" were established.

During Phase II, the contingencies of reinforcement were managed by the experimenter. During each of the four weeks of this phase, a performance contract was used which specified that the subject's daily output would be approximately 20 percent greater than his average daily output during the immediately preceding week; such increases had been previously agreed to by each subject. Upon completing a specified segment of work (e.g., a number of frames), the subject was allowed a 15-minute RE period. The third phase was a two-week self-management phase during which each subject was allowed to specify the amount of work he would do each day, the only limitation being that he was required to contract for an output equal to or greater than his daily average under baseline conditions. During all phases of the study, subjects were required to pass final exams on each programmed course before they could continue with new material.

The table below summarizes the performance over the six weeks of the experimental phases of the study.

Baseline (Phase 1) (3-week average)		Experimenter-management (Phase 2)				Self-management (Phase 3)	
		Week Number					
		1	2	3	4	5	6
Frames per day per man	286	360	406	465	509	435	415
Hours per day per man[a]	5.3	4.7	4.4	4.5	3.8	3.5	3.3
Frames per hour	61	77	92	102	134	125	126
Percent of tests passed	71	70	88	70	90	81	85
Number of *S*s	16	16	16	16	14[b]	13[c]	13

[a]Includes RE periods, testing, reviews, etc. Six *S*s were half-day students (a.m. or p.m. only)

[b]One *S* dropped by request. One *S* released from prison.

[c]One *S* dropped by request.

Although the increase for the last three weeks of Phase II averaged about 14 percent in frames per hour, the increase in test-taking resulting from the increase in number of frames brought the task-oriented activity approximately to the proposed 20 percent increase. Although the frames per hour decreased from the experimenter-managed phase to the self-managed phase, it should be emphasized that the subjects' productivity remained well above the established minimum. The results support the hypothesis that productivity levels can be increased by using methods of contingency management with offenders studying programmed materials and, additionally, that subjects can manage their own

learning behavior. The implication that more was learned per unit of time is further supported by the superiority of test results during the experimental phases; an increase in the quantity of work was achieved without sacrifice of quality.

It is realized that the effects of the performance contracting and the contingency management procedures were confounded. Experimental work is currently under way at Draper to isolate the effects of several important contingency management variables, including the performance contract, money as a reinforcer, the effectiveness of penalties, and self-management of the subject's learning contingencies. The principal dependent variables are rate of responding to PI materials, accuracy on tests, and standardized achievement tests gains.

Ecological Unit

While the above studies concern contingency management techniques specifically related to the IPI system, this system will be available to all MDTA inmate trainees who need basic education. Some of these inmates will be involved in a major study in contingency management and behavior modification being conducted by the EMLC. This study is concerned with the use of behavior modification techniques in a special programmed environment, the Ecological Unit. The EMLC is designing and operating a controlled environment in which trainees will spend their non-training hours. In this environment, the productive behaviors learned in the MDTA project will receive continued reinforcement. In addition, behaviors necessary for success in the postrelease environment will be reinforced and those maladaptive behaviors which have been shown to be detrimental to success will be systematically extinguished. The conceptual orientation for the project is that of a detailed behavioral analysis during the baseline period in the Ecological Unit, followed by behavior modification and contingency management based on a token economy.

The inmate in the Ecological Unit will be able to earn tokens by exhibiting increasingly consistent acceptability of personal and social skills behavior. The inmate can then use these earned tokens to "buy" items and privileges from a "reinforcing menu" constructed and rank-ordered by the inmate himself. Some examples of reinforcers selected by Draper inmates are:

(1) Fish for two hours

(2) Rent a television set

(3) Write four or more letters per week (instead of the institutional limit of three)

(4) Make a telephone call to someone outside the institution

(5) Rent an iron

(6) Visit Tutwiler Prison (women's) with the Draper band

(7) Interview with a parole board member

(8) Receive a copy of *Playboy*

(9) Take a PI course of own choice

Most menus contain at least 25 items, all of which are legitimate, hard-to-get, and very much in demand privileges or objects.

Correctional Officer Training Project

In order to increase the number of personnel capable of applying contingency management techniques and thus broaden the impact of its programs, the EMLC is also conducting an experimental project for training Draper's correctional officers in the application of behavioral principles, including contingency management, to modify and shape desirable behaviors of the inmate population. This is the first project in the nation to train correctional officers in behavior management techniques. The objective of the project is to give the correctional officer, who interacts constantly with the inmate, a technology of behavior influence and change, thus increasing his effectiveness in achieving the goal of rehabilitation. Some of these correctional officers will work within the Ecological Unit itself, while others will work in the current prison environment.

Evaluation of Experiments in Progress

The Rehabilitation Research Foundation, then, is currently involved in applying contingency management techniques in three areas: the Manpower Development and Training Program, the Ecological Unit, and the Correctional Officer Training Project. The effectiveness of contingency management techniques will be evaluated in each of these areas. The evaluation will not be as rigorous for the Correctional Officer Training Project as for the other two areas. It will consist of pretest-posttest comparisons and a simple, periodically administered follow-up questionnaire to determine how frequently each correctional officer consciously employs contingency management techniques.

Evaluation of the effectiveness of contingency management techniques in the MDT program will be part of an intensive, long-term follow-up study. The 115 MDT trainees involved in this program will be compared, in numerous areas, with 115 graduates of a previous MDT program which did not employ contingency management techniques.

The Ecological Unit will involve 40 to 50 MDT trainees and an equal number of inmates who have normal prison work assignments. This will permit multiple comparisons of the experimental subjects to determine the effectiveness of contingency management techniques. MDT trainees from the Ecological Unit will be compared with an equal number of MDT trainees who do not reside in the Ecological Unit, with an equal number of non-trainee residents of the Ecological Unit, and with an equal number of inmates who are neither trainees nor residents of the Ecological Unit.

All experimental projects described in this article are ongoing, and collection and computer analysis of data are continuous. Progress reports and special papers describing this work are available from the Rehabilitation Research Foundation, P.O. Box 1107, Elmore, Alabama, 36025.

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